

Receptivity to Self-service Technology (SST): A Research Overview and the Way Forward

Abstract

In a digital era characterised by the need for efficiency and value, self-service technology rises as a delivery interface offered by public and private sector service providers. With the assumption of a win-win situation for both the provider and customers who can ‘do it themselves’ online/offsite and offline/onsite, stereotypes arise concerning antecedents for positive receptivity and impediments in adopting SSTs. The present paper offers a literature-based discussion of some of the existing and emerging perspectives in this domain; it delivers a contextual review of studies conducted, highlights controversial viewpoints that need to be reconsidered, and suggests future research themes that can make use of the emergent digital sources in data collection and analysis. The purpose is to spark future research on the extent to which SST is a champion for different service types, and to systematically study the customer profile to be targeted for its optimal use in value co-creation.

Key Words

Self-service technology, Ageing, Technology Acceptance

Track:

Services Marketing

1. Introduction

In a Digital Age, where data is omnipresent and technology is defining market changes and responses to consumer needs, various issues emerge in relation to the interaction between technology and the human factor. Accordingly, many service businesses and public sector service providers are taking advantage of the benefits of introducing technology in their service provisions through a digital interaction interface.

Referring to these as e-services, technology-based self-services or digital services, studies have used several terms interchangeably to refer to online retail and government services, self-service technology in offline retail and public services, and access to information digitally (e.g. banking, library or housing services). Mixed use of such terms in different studies, particularly those related to public e-services, in the absence of clear definitions and contextual understanding has been criticised on the basis of ‘ghetto-ization’, ‘conceptual vagueness’ and ‘theoretical neglect’ (Lindgren and Jansson, 2013, p. 164).

Moreover, marketing e-services is challenged by consumer segments who may not endorse self-service technologies (SSTs) due to varied underlying factors; examples includes age, life cycle changes, subjective norms and factors related to ability, willingness, intentions to use and to engage with these e-services or SSTs (e.g., technology anxiety, technology readiness, time pressure, crowding, perception of ease of use). For instance, ageing is generally studied as a pressing domain, yet there is a dearth of studies on the increasingly relevant issue of using SSTs, both for private and public services, by older consumers.

Also, there is a presumption that customer automated technologies offer win-win situations, through improving the customer experience and allowing customers more choice while reducing service staff operational costs for businesses. Yet, this conjecture may not exhibit the full reality of the situation; for one, taking out the human interaction element of the service may not be welcomed by some customers; secondly, if technology breaks down due to a ‘glitch’, it leaves behind a halo of frustration and lack of confidence in trying it again successfully, specially under time pressure or publicly at the front of a crowded queue.

The present paper offers a discussion of some of the existing and emerging perspectives concerning impediments and benefits of the use of SSTs in public and private service domains in the UK; it delivers a contextual review of studies conducted in the extant literature, discusses various viewpoints that need to be considered, and suggests future research themes that can make use of the emergent digital sources for its data collection.

2. Defining SSTs/E-services

SST enabled-services use technological interfaces, which can be tangible such as self-service kiosks (SSKs) or intangible such as mobile ‘apps’, in providing access to services in the absence of handy staff. In this sense, it is a form of self-servicing within the frame of co-creating value both in online and offline service-scapes (Hilton, Hughes, Little and Marandi, 2013; Collier, Sherrell, Babakus and Blakeney Horky, 2014). Studies have focused more on online than offline SST-based services (Kaushik and Rahman, 2015), and some have examined the differences between types of SSTs on customer acceptance of and attitudes towards SST and its benefits (Curran and Meuter, 2005; Dimitriadis and Kyrezis, 2011).

In their conceptual framework of e-services in the public service context, Lindgren and Jansson (2013) criticise the lack of proper definition and explanation of the concept in the extant studies. Their study dissects the term into its key constituents of the ‘e’ and ‘service’; ‘e’ as in electronic/technological, and service as the intangible product offered and consumed. The ‘e’ can be online (Website or digital) or offline (e.g. SSKs or ticketing machines). Also, the service itself can be through private sector providers (e-retailing, banking, travel booking, etc.) or public sector providers (the government and related organisations). Nonetheless, SSTs can alternatively be categorised into public self-service technology and private self-service

technology on the basis of its location of provision and the extent of social interaction entailed (Collier et al., 2014). Different types of SSTs involve varying challenges and value-added dimensions; they are thus perceived differently by customers in terms of attitudes towards trying them, confidence in their ease of use and the need for them, and hence SST adoption.

3. Customer Differences for Private and Public SSTs

At a broad level, from a customer perspective the notion behind the use of SST is simple: being empowered to do things on their own, saving time spent in queuing and waiting for a human agent (in the case of public SSTs), and enjoying the accessibility of doing service transactions from home conveniently at their own time (in the case of private SSTs).

From an organisation's perspective, SSTs drive efficiency gains by increasing customer base, devoid of a matching increase in staff costs or physical operating sites (Hilton et al., 2013). As such, existing staff time can be freed to do other *higher-value* tasks, thus fostering advances in human capital management and strategic staff development (Schröder, 2007). Such efficiency gains also assume that service staff are happier and more comfortable in forgoing *low-value* activities for a better management of the customer experience. However, this view of customer service employees is controversial given that technology-based efficiencies entail job cuts as full self-service technology replaces the human touch.

Importantly also, talking broadly about acceptance of using SST and its benefits implies a simplification that does not highlight the reality of individual differences in receptivity to SST and the value involved. More recently, studies have picked up on this thread in terms of the necessity to comprehend that, for customers, various SSTs are evaluated differently and hence attitudes towards their use and the decisions to adopt them are not generic. Whether classified based on the type of service provider being a business or a government, or based on the type of service provision location being a public place (e.g. SSKs) or a private context (e.g. using bank card readers and mobile apps), or on perception of the inherent value and the ease of successful self-servicing, there are many disparities in attitudes and motivations involved.

Many studies have been conducted on personal factors and situational conditions at the background of individual differences. On the personal level, individuals will vary in their 'do-it-yourself' likeability, experience and skills in using the technology (Jayasimha and Nargundkar, 2006; Lindgren and Jansson 2013; Meuter, Ostrom, Bitner and Roundtree, 2003), and in risk assessment and the level of control felt (Curran and Meuter, 2007; Dabholkar, 1994). Social and psychological factors include preference for person-to-person interaction (Simon and Usunier, 2007; Hilton et al., 2013) and anxiety concerning SST usage (Dabholkar and Bagozzi, 2002), particularly in public under conditions of perceived crowding and time pressure (Gelbrich and Sattler, 2014). Personal characteristics related to gender (Elliott and Hall, 2005) and age differences (Niemelä-Nyrhinen, 2007; Dean, 2008; Lee, Cho, Xu and Fairhurst, 2010) are also studied as probable determinants in the acceptance of SST use. On the situational level, the type of SST involved as well as the location of provision and anticipated benefits in its adoption are variants among individual customers (Collier et al., 2014; Dabholkar and Bagozzi, 2002). The next part of the discussion focuses on age as a key personal factor, and technology anxiety and readiness as situational factors possibly at play.

1.1 Ageing and age differences

With a globally rising ageing population, response to the consumption patterns of elder consumers is becoming a must for businesses and governments alike in service provision. This is supported most recently by Nicholls and Gad Mohsen (2015, p. 256) in indicating that 'society has to inevitably enhance the experience of ageing customers, improving their productivity and finding means of better serving their varied needs. This includes improving our understanding of the implications for service consumption of the complexity of ageing

customers and customer age diversity'. In the UK, 'The population is projected to continue ageing, with the average (median) age rising from 40.0 years in 2014 to 40.9 years in mid-2024 and 42.9 by mid-2039. By mid-2039, more than 1 in 12 of the population is projected to be aged 80 or over' (Office for National statistics, 2015). As the post-war baby boomer generation have just started to retire and will continue to do so over the next two decades, there will be mounting pressure on the public sector for improving efficiency and managing costs; this is given that as a higher proportion of the population is retired, the gap (or deficit) between labour production resources and consumption pressures will become greater.

According to one view, using SST requires a behavioural change that ageing individuals may not be ready for (Dean, 2008), yet another view depicts them as 'active consumers for technology' if it is designed to interest them and initiate their innovativeness (Peine, Rollwagen and Neven, 2014). Research on the influence of age on acceptance of SSTs yielded mixed results; studies by Dabholkar, Bobbit and Lee (2003) and Weijters, Rangarajan, Falk and Schillewaert (2007) on attitude towards self-scanning checkouts reported an insignificant influence of age. However, in a study exploring the cognitive, demographic, and situational determinants of the preference for using SSTs over employee contact, Simon and Usunier (2007) found that age has a negative influence on preference for service technology and that persons high in experiential versus rational-thinking style prefer interactions with service personnel as opposed to SSTs. Hence, older consumers may avoid participating in e-service schemes.

Dean (2008, p.234) proposes that 'the behavioral tendency of older consumers to avoid SST is associated with a relatively diminished confidence in their ability to use SST, a desire for human interaction, and an attribution that SST is there to benefit the company rather than the consumer'. This avoidance may be a consequence of the predominantly paternalistic stance of designers towards ageing users. Viewing older people as 'active co-creators of technology' or 'Innosumers', Peine et al. (2014) argue that there is a need to rethink this relationship and involve silver consumers more in product design to improve their lives.

1.2 Technology anxiety and intentions to use SSTs

Services received in public, or 'onsite', involve a different state of mind for the consumer than services that can be attained in private, or 'offsite' (such as online banking). Specifically in relation to involving technology in the service equation, public SSTs and private SSTs differ in the extent of receptivity to them due to varying levels of apprehension in their use and corresponding consumer-felt technology anxiety (Dabholkar and Bagozzi, 2002). Facing a touch screen at a grocer's self-service checkout or a check-in appointment machine at the GP, with other customers queuing behind, self-consciousness rises and technology angst intensifies. Technology readiness also differs based on various individual traits, yet confronted with crowdedness and time pressure in public, perceptions of ease of use shrink as anxiety upsurges and technology acceptance dwindles (Gelbrich and Sattler, 2014).

The Technology Acceptance Model (TAM3) adapted by Venkatesh and Bala (2008) emphasises technology anxiety as moderating perceived ease of use, and subsequently intentions to use SSTs (Gelbrich and Sattler, 2014). A consumer feeling low self-efficacy will avoid operating the technology as a coping strategy to control anxiety, which consequently does not boost SST trial or use. Further research is hence needed towards investigating how best to improve the customer experience and motivate a positive attitude towards public SSTs by possibly offering low-stress education on prototypes of the technology, listening to customer concerns and fears, and alleviating perceptions of crowdedness and time pressure.

Combined with the issue of ageing, such research is important as using SSTs in public sector service provision can assist in more rapidly lowering costs through efficiency gains associated with a greater degree of productivity by older consumers. Encouraging older

consumers' use of private SSTs is emerging as a public policy pursuit – an example of which is self-service health management using smartphone technology for monitoring and diagnosis. Yet, means of encouraging the use of public SSTs is still at an embryonic stage of research.

4. Future Research Directives

According to Fountain (2001: p. 45), “technology is a catalyst for social, economic and political change at the levels of the individual, group, organization and institution.” Nonetheless, e-services may not be broadly positively perceived by different consumer groups. With the many dimensions and factors involved, more focused research attention by public policy makers and both public and private service providers is needed to tackle the key issues that hamper or facilitate the success of SST and the extent of its use.

Even though SST may be aimed at efficiency and a better experience in service provision, the customer may miss out on enjoying the ‘convenience’ benefit and feel instead that the effort is just being passed down from the provider to the user, mal-motivated by a corporate self-interest. This can be explained by the Continuity Theory (Atchley, 1989) which suggests that older customers, who grew up prior to the notion of SST, are acclimatised to expect by default a service encompassing a human agent. Also, ‘convenience’ may mean different things to different people, and in different settings such as using private or public SSTs (Collier et al., 2014). If technology anxiety and feelings of alienation overwhelm the customer, perceptions of ease of use and convenience may swiftly disappear.

Towards future directives for study, urging themes can emerge based on a number of questions; 1. Are SSTs aimed at replacing customer-staff service experience with customer-technology service experience, or is it a supporting interface to improve efficiency (through, for instance, managing peak hours or towards out-of-hours convenience) while still maintaining the interactive human element, albeit to a reduced extent? 2. Is technology-based self-service suitable for every service and every customer, or is it important to study the feasibility of value co-creation for each service type and to evaluate pros and cons for specific customer groups that should be targeted? These questions entail a number of themes for future research. Firstly, more advanced research is needed on the viability of using various types of SST in public and private domains, in addition to more systematic evidence on where the benefits, costs and value lie, and for whom, towards finding the right balance.

Secondly, it is important to note that culture plays a significant role in technology adoption, as do country factors (developed vs. developing countries) given that in some countries the cost of the human factor is lower than technology costs in replacing it. And even if it is more productive to use self-service and co-create value through the involvement of the customer in the service delivery process, should certain demographics be targeted in the marketing of SST in the different cultures? This becomes more critical given world economies and global businesses, urging international marketing research (Nilsson, 2007). Thirdly, assuming SSTs become popular among all customers – will the number of public SSTs (interactive machines/kiosks) for public sector services and business services keep up with corresponding demand, or will technology adoption result in further queues that push some back to manned ticket stations, check-in desks and check-out aisles? Such instances can lead to pressing a restart button on perceptions of the value of technology in improving lives.

5. New Research Modes

SSTs create new challenges for organisations; rather than managing trained employees, they are managing heterogeneous customers who know little about the task at hand. Also, staff training has to shift from customer service and delivery management, to customer management, provision of technology support/education and solution architecture. If customer retention is to be maintained, service recovery has to advance in the absence of a

trained human touch to effectively deal with disgruntled customers confronted with tech-frustrating incidents. Considering this in future studies, researchers should investigate both employees and customers to avoid making ungrounded assumptions about SST acceptance for these stakeholders, the challenges faced and the risks involved from different perspectives.

For instance, Niemelä-Nyrhinen's (2007) study of the Finnish baby boomers highlights distorted stereotypes about their reluctance and anxiety in the adoption of new technology, and calls for further studies in other countries to test the truth of this 'over-generalized impression'. Peine et al.'s (2014) study emphasises rethinking the position of older technology users in innovation and their inclusion in its design. Future studies can go beyond traditional research methods in data collection into the use of digital sources, such as Netnography, where customer views are captured *online but offsite*; observations of public SST usage, expressed attitudes and actual trial incidents can also be captured electronically *onsite* and analysed using tech-based software to provide decision makers with insights in better determining whether value co-creation is indeed being achieved, and for whom.

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